INSTITUTIONAL CONTROL DATA STANDARD

Standard No.: EX000015.1

January 6, 2006

**This standard has been produced through the
Environmental Data Standards Council (EDSC).**

Foreword

The Environmental Data Standards Council (EDSC) identifies, prioritizes, and pursues the creation of data standards for those areas where information exchange standards will provide the most value in achieving environmental results. The Council involves Tribes and Tribal Nations, State and Federal agencies in the development of the standards and then provides the draft materials for general review. Business groups, non-governmental organizations, and other interested parties may then provide input and comment for Council consideration and standard finalization. Draft and final standards are available at http://www.envdatastandards.net.

1.0 INTRODUCTION

The Environmental Protection Agency (US EPA) defines institutional controls (IC) as non-engineering measures, such as administrative and/or legal controls, that help to minimize the potential for human exposure to contamination and/or to protect the integrity of a remedy by limiting land or resource use. ICs are used when contamination is first discovered, when remedies are ongoing, and when residual contamination remains onsite at a level that does not allow for unrestricted use and unlimited exposure after cleanup. Please note that while ICs will be defined in administrative or legal terms that must generally be filed, they should be expected to change if warranted by changes in the levels of residual contamination to decrease or increase the area with ICs.

This document is organized such that the four core components of an IC (IC Instrument, IC Objective, Location, and Engineering Control) and all auxiliary components that accompany this information (IC Affiliation, IC Resource, and IC Event) are regarded as modules on the same hierarchical level. Within these modules are the data groupings and data elements. Details about how these high-level modules are interrelated are provided in the beginning of each module within section 3.0 of this document. Details about how these modules relate to smaller data blocks and data elements are provided in the **Institutional Control Extensible Markup Language (XML) Schema Definition** available at http://www.exchangenetwork.net

The concept of most importance to the IC Data Standard is that there is no single central entity that defines an IC. A complete IC must contain at a minimum an IC instrument, an IC objective, and the location(s) to which the IC instrument and IC objective pertain. Some subsets of this information are acceptable and may be provided as information is available; however, certain details about data elements are often necessary to provide the needed context for the information being exchanged. Please note that the relationships defined in the beginning of each module are written to guide users on how to provide information for a **complete** IC. The text "zero, one, or more" indicates that the relationship between the two entities is not necessary to define a complete IC. Also note that an engineering control, though an integral aspect of an IC when applicable, is not required to define an IC. Information about an engineering control only needs to be provided if the intent of an IC instrument is to protect the integrity of that engineering control.

It is important to note that IC objectives and use restrictions are not the same. Although an IC objective may be met by the use restrictions of an IC instrument, the IC objective is not a property of the IC instrument and must be captured separately. For example, the objective at a location called *IC Site* could be to *protect the integrity of a landfill cap*. The use restriction (generally found within the language of the IC instrument) could be to *prohibit entry into IC Site*. This use restriction prevents the disturbance of the landfill cap by restricting access to it, thereby meeting the objective at *IC Site*. The IC objective describes the desired outcome of implementing an IC at a location, while the use restriction describes what is actually being done to reach that outcome once the IC is implemented. To summarize, an IC instrument has use restrictions that serve to meet IC objectives at specific locations.

It should be noted that all permits transmitted within the scope of ICs are IC instruments or IC resources; however, not all IC instruments and IC resources are permits. For this reason, information about permits must be captured using the IC instrument or IC resource modules of this data standard. Although this

information is being transmitted via XML tags that are not part of the **Permitting Information [EX000021.2] Data Standard**, this data standard mandates that they still be bound by the rules set forth by the **Permitting Information [EX000021.2] Data Standard**.

Note that some of the data elements are prefixed with "IC." A data standard data element should have a name and definition that applies broadly; however, it is important to be cognizant of using names that may have different meanings in different programs. For example, the IC data standard contains the term "IC Objective Name," which is defined as "the name assigned to the intended goal of an IC […]." If the IC data standard used the term "Objective Name" instead, other programs could use that term with a different context and different meaning. The consequence is that one of the primary goals of data standards, to enhance visibility and communication between flows, would be jeopardized.

1.1   Scope

This EDSC standard defines the elements required for describing IC information. It provides information about the implementation, monitoring, enforcement, and termination of instruments (via the IC Event) as well as the objectives they meet, associated locations, affiliates and their roles/responsibilities relevant to the IC, cleanup actions (via the IC Event), technologies, and the documentation related to each of the aforementioned subsets of data.

The IC Data Standard can apply to any IC that is tracked and electronically managed by US EPA, state, tribal, or other desiring or interested entities. The application of this standard is intended for cleanup actions. For example, a permit that is required for drilling drinking water wells where residual contamination remains in an aquifer is an IC. However, an ongoing advisory, such as a pesticides advisory, may not be subject to the standard. Other program areas or database systems related to ICs may implement or use the standard if they believe it will facilitate information transfer.

1.2   Revision History

Date	Version	Description
January 6, 2006	EX000015.1	Initial Environmental Data Standards Council Adoption of base standard and Addendum [EX000015.1 Addendum].

1.3   References to Other Documentation

This data standard relies on other data standards to make it complete and to provide the necessary support. As such, users should reference the normative standards, listed below, and consider them integral to the IC Data Standard. These include the following:

- Bibliographic Reference [EX000007.1] Data Standard
- Biological Taxonomy [EX000018.2] Data Standard
- Chemical Identification [EX000016.2] Data Standard
- Contact Information [EX000019.2] Data Standard
- Facility Site Identification [EX000020.2] Data Standard
- Permitting Information [EX000021.2] Data Standard
- Representation of Date and Time [EX000013.1] Data Standard

This data standard relies on the following technical specification to make it complete:

- Institutional Control Vector Profile [EX000015.1 Addendum] Technical Specification, Addendum to the Institutional Control Data Standard

Users may consider referencing the following informative standards for more support concerning the collection of geospatial information as it relates to ICs:

- FGDC Content Standards for Digital Geospatial Metadata [FGDC-STD-001-1998]
- FGDC CSDGM Extensions for Remote Sensing Metadata [FGDC-STD-012-2002]
- FGDC Framework Data Content Standard Part 5: Governmental Unit and Other Geographic Area Boundaries [DRAFT FGDC-STD-2005]
- FGDC/Spatial Data Transfer Standard (SDTS) Part 5 Raster Profile and Extensions, FGDC Standard [FGDC-STD-002.5-1999]

1.4   Terms and Definitions

For the purposes of this document, the following terms and definitions apply:

<u>Term</u>	<u>Definition</u>
Institutional Control	A non-engineered instrument, such as an administrative and/or legal control, that helps to minimize the potential for human exposure to contamination and/or protects the integrity of a remedy by limiting land or resource use.
IC Instrument	An administrative measure and/or legal mechanism that establishes a specific set of land or resource use restrictions.
IC Objective	The intended goal of an IC in minimizing the potential for human exposure to remaining contamination and/or protecting the integrity of an engineering control by limiting land or resource use in a particular media.
Location	A physical location or area defined by a geographic area description, a set of facility site descriptions, and/or a geographic coordinate description. Examples of two separate facility site descriptions for a single site are the 12-digit US EPA Site Identifier and the 7-digit Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Site Identifier. These values would be captured through two separate facility site descriptions within the same location.
Engineering Control	A physical technology implemented to minimize the potential for human exposure to contamination by means of control or remediation.
IC Affiliation	Any individual or organization associated with an IC either directly or indirectly. An example of an affiliation with a direct IC relation is a party responsible for monitoring the IC. An example of an affiliation with an indirect IC relation is an owner of a site at which ICs are implemented.
IC Resource	Any document or source of information associated with an IC either directly or indirectly. An example of a resource with a direct IC relation is a document mandating an IC enforcement action. An example of a resource with an indirect IC relation is a map of a site at which ICs are implemented.

IC Event   Any occurrence or action taking place on a specific date or over a period of time, for which data may be collected, processed, distributed, or used for purposes related to ICs.

1.5 Implementation

Users are encouraged to use the XML registry housed on the Exchange Network Web site to download schema components for the construction of XML schema flows (http://www.exchangenetwork.net).

1.6 Document Structure
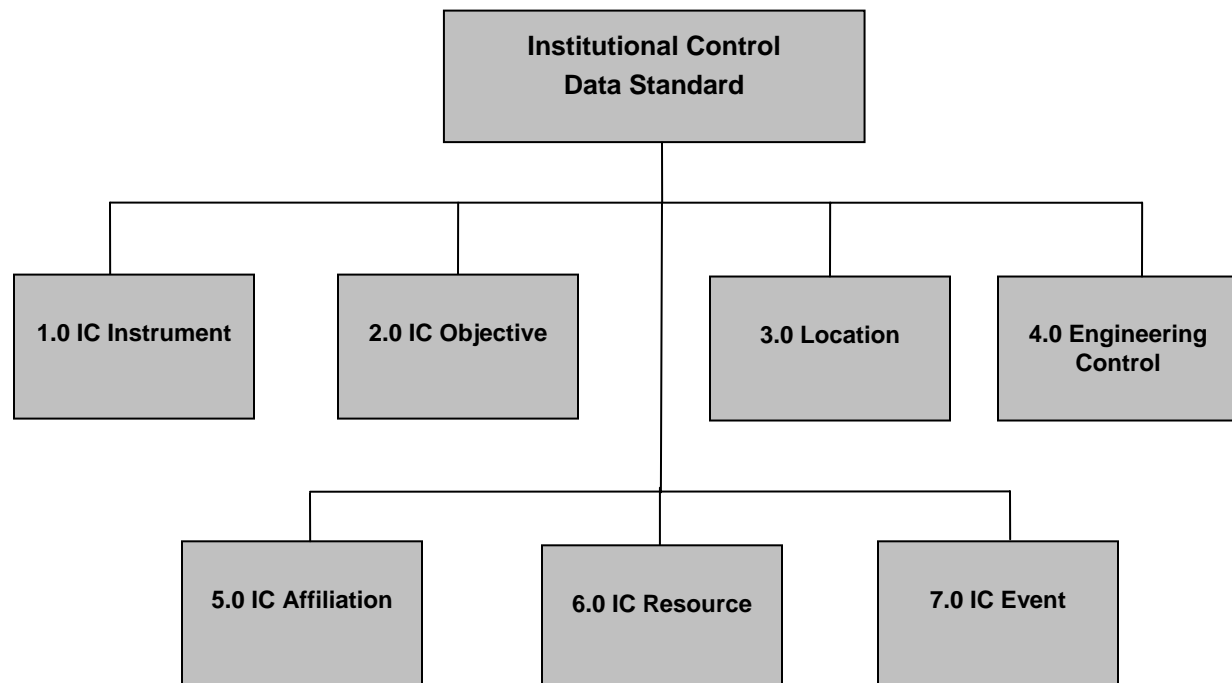
The structure of this document is briefly described below:

a. Section 2.0 Institutional Control Diagram, illustrates the principal data modules contained within this standard.

b. Section 3.0 Institutional Control Data Standard Table, provides information on the high level, intermediate and elemental IC data groupings. Where applicable, for each level of this data standard, a definition, notes (including lists of example and permissible values when applicable), format, and XML tag are provided. The format column may list the required number of characters for the associated data element, where "A" designates an alphanumeric, "N" designates a numeric, "G" designates a data element group and "D" designates a reference to the **Representation of Date and Time [EX000013.1] Data Standard**.

c. Data Element Numbering. For purposes of clarity and to enhance understanding of data standard hierarchy and relationships, each data group is numerically classified from the primary to the elemental level.

d. Code and Identifier Metadata. Metadata are defined here as "data about data or data elements, possibly including their descriptions" and/or any needed context setting information required to identify the origin, conditions of use, interpretation, or understanding of the information being exchanged or transferred (Adapted from ISO/IEC 2382-17:1999 Information Technology Vocabulary—Part 17: Databases 17.06.05 metadata). Based on the business need, additional metadata may be required to sufficiently describe an identifier or a code. A note regarding this additional metadata is included in the notes column for identifier and code elements. Additional metadata for identifiers may include:

- Identifier Context, which identifies the source or data system that created or defined the identifier

Additional metadata for codes may include:

- Code List Identifier, which is a standardized reference to the context or source of the set of codes

- Code List Version Identifier, which identifies the particular version of the set of codes

- Code List Version Agency Identifier, which identifies the agency responsible for maintaining the set of codes

- Code List Name, which describes the corresponding name that the code represents

e. Appendix A Institutional Control Data Structure Diagram, illustrates the hierarchical classification of the Institutional Control Data Standard. This diagram enables business and technical users of this standard to quickly understand its general content and complexity.

f. Appendix B Lists of Example Values, provides the long lists of example values for data elements that, if included in the text of this standard, would hinder its readability.

2.0   INSTITUTIONAL CONTROL DIAGRAM

This diagram specifies the major data modules that may be used to identify the characteristics of and/or catalog IC information.

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                    ┌─────────────────────────┐
                    │  Institutional Control  │
                    │      Data Standard      │
                    └─────────────────────────┘
                                 │
     ┌──────────────┬────────────┴────────────┬──────────────┐
     │              │                          │              │
┌─────────┐   ┌───────────┐            ┌─────────────┐  ┌───────────────┐
│ 1.0 IC  │   │ 2.0 IC    │            │ 3.0 Location│  │ 4.0           │
│Instrument│  │ Objective │            │             │  │ Engineering   │
│         │   │           │            │             │  │ Control       │
└─────────┘   └───────────┘            └─────────────┘  └───────────────┘
                                 │
          ┌──────────────┬───────┴────────┬──────────────┐
          │              │                 │
   ┌──────────────┐ ┌──────────────┐ ┌──────────────┐
   │ 5.0 IC       │ │ 6.0 IC       │ │ 7.0 IC Event │
   │ Affiliation  │ │ Resource     │ │              │
   └──────────────┘ └──────────────┘ └──────────────┘
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3.0   INSTITUTIONAL CONTROL DATA STANDARD TABLE

1.0   IC Instrument

Definition: An administrative measure and/or legal mechanism that establishes a specific set of land or resource use restrictions.

Relationships:

- Each IC instrument must meet, or intend to meet, one or more IC objectives.
- Each IC instrument must be associated with one or more locations.
- Each IC instrument may protect zero, one, or more engineering controls.
- Each IC instrument may have zero, one, or more affiliations.
- Each IC instrument may be associated with zero, one, or more resources.
- Each IC instrument must be associated with one or more events.

Notes: None.

XML Tag: ICInstrument

Name	Definition	Notes	Format	XML Tag
1.1 IC Instrument Identifier	A unique identifier assigned to an administrative measure and/or legal mechanism that establishes a specific set of land or resource use restrictions.	*Note 1:* This data element may be used to provide a permit number/identifier. Refer to the Permit Number/Identifier data element in the **Permitting Information [EX000021.2] Data Standard** for definition and format information. *Note 2:* Based on the business need, additional metadata may be required to sufficiently describe an identifier. This additional metadata is described in section 1.6.d.	A	ICInstrumentIdentifier

Name	Definition	Notes	Format	XML Tag
1.2 IC Instrument Name	The name assigned to an administrative measure and/or legal mechanism that establishes a specific set of land or resource use restrictions.	This data element may be used to provide a permit name. Refer to the Permit Name data element in the **Permitting Information [EX000021.2] Data Standard** for definition and format information.	A	ICInstrumentName
1.3 IC Instrument Category Name	The major IC classification to which an administrative measure and/or legal mechanism that establishes a specific set of land or resource use restrictions belongs.	This data element serves to qualify the "IC Instrument Type," data element 1.4. List of Example Values: • Government • Proprietary • Enforcement • Informational	A	ICInstrumentCategoryName
1.4 IC Instrument Type Text	The type of administrative measure and/or legal mechanism that establishes a specific set of land or resource use restrictions.	*Note 1:* This data element may be used to provide a permit type. Refer to the Permit Type Code data element in the **Permitting Information [EX000021.2] Data Standard** for definition and format information. *Note 2:* The types of IC instruments are dependent on the categories involved. A list of example values is provided in Appendix B for Government, Proprietary, Enforcement, and Informational categories.	A	ICInstrumentTypeText
1.5 IC Instrument Lifespan Indicator	The lifespan of an administrative measure and/or legal mechanism that establishes a specific set of land or resource use restrictions indicated as permanent or temporary.	List of Permissible Values: • Permanent • Temporary	A	ICInstrumentLifespanIndicator

**Appendix A
Institutional Control Data Structure Diagram**